



Short communication

Occurrence of home-based record stock-outs—A quiet problem for national immunization programmes continues

David W. Brown*, Marta Gacic-Dobo

Brown Consulting Group International, LLC, USA
World Health Organization, Switzerland

ARTICLE INFO

Article history:

Received 5 October 2017
Received in revised form 8 December 2017
Accepted 19 December 2017
Available online 5 January 2018

Keywords:

Immunization
Vaccination
Home-based record
Personal health record
Supply chain
Supply disruption
Stock-out
Recording
Monitoring

ABSTRACT

Home-based records (HBRs) provide an effective, inexpensive mechanism for recording and tracking infant vaccinations, yet stock-outs prevent HBRs from fulfilling their intended function. We describe the annual occurrence of HBR stock-outs during 2014–2016 reported by national immunization programmes to the WHO and UNICEF on the Joint Reporting Form on Immunization. During 2014–16, 48 countries reported at least one HBR stock-out. Thirteen countries reported HBR stock-outs for two of the three years. Forty-four countries reported two or more HBR funding sources in 2016. Challenges persist in ensuring continuous availability of HBRs. HBR stock-outs have important implications as they may impact continuity-of-care, increase inefficiencies at the point-of-care and reduce the ability of caregivers to be effective health advocates. Identifying mechanisms for preventing stock-outs should be a focus of attention for programmes and development partners. Expanded efforts are required to better understand the underlying causes of HBR stock-outs and identify solutions.

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1. Introduction

Vaccination cards and child health books, also known as home-based records (HBRs), play an important role in documenting immunization and other primary care services [1]. HBRs complement facility-based recording and monitoring systems that provide the information necessary to inform frontline clinical decision making that may ultimately reduce the inefficiencies and improve care [2,3]. HBRs offer a simple and relatively inexpensive means of fostering coordination and continuity-of-care, facilitating communication between providers and caregivers and improving caregiver understanding and expectations about health services [1]. HBRs can help stimulate demand for vaccination services by raising caregivers' awareness of the benefits of vaccines, the recommended vaccination schedule and the date of the child's next vaccination visit.

In order to meet these critical needs, a well-designed, durable HBR must be readily available in adequate quantities for field-level health workers to distribute. HBRs are often underutilized,

in part, due to insufficient supplies. As with stock-outs of other vaccine delivery supplies, HBR stock-outs are avoidable with appropriate attention to strengthening supply chains and logistics. We recently highlighted the occurrence of national-level HBR stock-outs [4] reported to the World Health Organization (WHO) and United Nations Children's Fund (UNICEF) for 2014 and 2015. This report provides an update on HBR stock-outs that occurred during 2016.

2. Methods

Since 1998, the World Health Organization (WHO) and United Nations Children's Fund (UNICEF) have collaborated annually to collect global information on national immunization programme performance using a standardized data collection form, the Joint Reporting Form on Immunization (JRF). Most often, national immunization managers complete the questionnaire. A detailed description of the JRF, including questions on immunization system indicators and data collection process is described elsewhere [4]. The information collected by the JRF serves as a critical resource for tracking implementation of the Global Vaccine Action Plan (GVAP) [5], and the Regional Vaccine Action Plans (RVAPs). These initiatives serve as key frameworks to guide immunization

* Corresponding author at: 19701 Bethel Church Road, Ste 103-168, Cornelius, NC 28031, USA.

E-mail addresses: david.brown@brownconsultinggroup.org (D.W. Brown), gacicdobom@who.int (M. Gacic-Dobo).

strategies at the global and regional levels. The JRF began collecting data on the occurrence of HBR stock-outs in 2015 for events occurring the prior calendar year.

During the first quarter of 2017, national immunization programmes reported immunization system performance data for 2016 to the WHO and UNICEF on the JRF. During 2014–16, the JRF included the following questions related to HBRs:

- Was there a stock-out of home-based vaccination records for children (no remaining home-based records for any period of time) at the national level during 201(4/5/6)? (Yes-No or No Response [NR]).
- Which organization is responsible for financing the home-based records for children in your country? (Multiple Choice, Multi-Select question allowing the respondent to select any combination of the following: (i) immunization programme or Ministry of Health (EPI/MOH), (ii) other government agency (iii) development partner and (iv) other) (Yes-No or NR).
- Is the printing of home-based vaccination records for children the responsibility of the national programme (EPI or MOH)? (EPI/MOH-Other).

Respondents were asked to provide clarifying details for each response.

Results were tallied at the global level and by WHO operational region, World Bank income classification and eligibility for Phase 2 financial support from Gavi, the Vaccine Alliance (i.e., Gavi 73 countries) (N.B.: In Gavi Phase 2, country eligibility was based on the World Bank Gross National Income estimates for 2003 against an eligibility threshold of US\$1000. A total of 72 countries were eligible at the time plus the addition of South Sudan which was recognized as an independent member state of the World Health Assembly in 2011). For the most recent reporting period, reflecting the situation in 2016, 97% (189/194) of Member States to the World Health Assembly reported data on the JRF, an improvement from 68% (131/192) of countries in 2000.

3. Results

In 2016, 29 (15%) countries reported a national-level HBR stock-out, an increase from that reported in 2014 (n = 19); 16 of the 29

were located in the WHO Africa Region. While stock-outs occurred in countries of all income groups, middle-income countries reported stock-outs most frequently. Stock-outs were reported in 18 middle-income countries, 9 of which are countries who were among the Gavi 73 countries. More than half of the countries reporting a HBR stock-out in 2016 were Gavi 73 countries, an increase from 2014. For the current year, 104 (54%) countries reported no HBR stock-out and 59 (30%) countries did not report data on the occurrence of HBR stock-outs (Table 1). In 2013, two countries, Norway and Belarus, reported [6] that they do not use HBRs.

Across a three-year period, 2014–2016, 48 (25%) countries reported at least one national-level HBR stock-out, including 31 Gavi 73 countries. Five countries (Belize, Cameroon, DRC, Guinea-Bissau, Venezuela) reported national-level HBR stock-outs for all three years, 13 countries (Botswana, Burundi, Cambodia, Chad, Dominican Republic, Equatorial Guinea, Ghana, Kenya, Lao People's Democratic Republic, Namibia, Philippines, Somalia, Timor-Leste) reported HBR stock-outs for two of the three years, and 30 countries reported a national-level HBR stock-out for one year during the three-year period. Sixty-nine (35%) countries reported no HBR stock-outs for any of the three years (Fig. 1). Seventy-five countries did not report any information on the occurrence of HBR stock-outs for at least one year during 2014–16; 31 countries did not report data for all years during 2014–16 and 44 countries did not report data on HBR stock-out for one or two years during 2014–16.

In 2016, reported funding sources for HBRs included the national immunization programme in 111 countries, other government agency in 25 countries, non-governmental partners in 37 countries and other sources (e.g., private health providers) in 25 countries (Fig. 2). Forty-four countries reported two or more HBR funding sources in 2016. Forty-one percent (12/29) of countries reporting a HBR stock-out in 2016 noted two or more HBR funding sources compared to 28% (29/104) of countries that did not report a HBR stock-out. Among the remaining 59 countries that did not report data on HBR stock-outs (recall that two countries reported that they do not use HBRs), only three countries noted two or more HBR funding sources.

Among the 29 countries reporting national-level HBR stock-outs in 2016, 27 provided information on the funding sources for HBRs (Appendix A Table). Sixteen countries reported a single source, eight countries reported two sources, two countries

Table 1
Occurrence of national level home-based record stock-outs during 2014–16 reported by national immunization programmes by WHO region, Gavi-eligibility and World Bank income classification.

	2014			2015			2016		
	Yes	No	NR	Yes	No	NR	Yes	No	NR
<i>WHO Region</i>									
AFR (n = 47)	11 (23)	26 (55)	10 (21)	13 (28)	30 (64)	4	16 (34)	24 (51)	7 (15)
AMR (n = 35)	4	25 (71)	6 (17)	3	27 (77)	5 (14)	4	25 (71)	6 (17)
EMR (n = 21)	1	12 (57)	8 (38)	1	14 (67)	6 (29)	1	13 (62)	7 (33)
EUR (n = 53)	0	24 (47)	27 (53)	0	26 (51)	25 (49)	1	23 (45)	27 (53)
SEAR (n = 11)	0	9 (82)	2	1	8 (73)	2	3	7 (64)	1
WPR (n = 27)	3 (11)	13 (48)	11 (41)	5 (19)	15 (56)	7 (26)	4	12 (44)	11 (41)
Gavi 73 (n = 73)	10 (14)	44 (60)	19 (26)	16 (12)	47 (63)	10 (26)	19 (26)	39 (53)	15 (21)
<i>Income group</i>									
Low (n = 31)	7 (23)	17 (55)	7 (23)	7 (23)	22 (71)	2	10 (32)	17 (55)	4
Middle (n = 105)	12 (12)	63 (61)	29 (28)	16 (15)	67 (64)	21 (20)	18 (17)	61 (59)	25 (24)
Gavi (n = 42)	3	27 (64)	12 (29)	9 (21)	25 (60)	8 (19)	9 (21)	22 (52)	11 (26)
non-Gavi (n = 63)	9 (15)	36 (58)	17 (27)	7 (11)	42 (68)	13 (21)	9 (15)	39 (63)	14 (23)
High (n = 56)	0	28 (51)	27 (49)	0	29 (53)	26 (47)	1	25 (45)	29 (53)
Not classified	0	1	1	0	2	0	0	1	1
Totals ^a (n = 194)	19 (10)	109(57)	64 (33)	23 (12)	120(63)	49 (26)	29 (15)	104(54)	59 (31)

Data reported as n (%). Percentages are not reported for cells with less than 5 countries.

NR, no response.

^a Two countries, Norway and Belarus, reported to WHO in 2013 that they do not use home-based records.

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